

School District Offers More Connected Learning at Lower Cost



Executive Summary

Customer Name: Indianapolis Public Schools

Industry: Education

Location: Indianapolis, Indiana

Number of Employees: 6400

Number of Students: 33,000

Challenge:

- Improve student access to computing labs and resources
- Reduce number of physical servers to save on hardware and maintenance costs
- Enable large school district to provide online state testing for 33,000 students by 2014

Solution:

- Cisco Desktop Virtualization Solutions
- Cisco UCS B230 and B250 Blade Servers
- Cisco Nexus 5000 Series Switches

Results:

- Saved up to US\$2 million in licensing fees by delivering 5300 virtual desktops to 33,000 students, faculty, and administrators
- Simplified desktop IT support model, reducing application deployment time from hours to minutes and helping enable greater agility
- Saved approximately \$1.1 million in hardware costs and services by reducing number of physical servers from 300 to 17

Indianapolis Public Schools consolidates data center to achieve cost savings while scaling to meet student computing demands.

Challenge

Based in the state's capital, Indianapolis Public Schools (IPS) is the largest school district in the state of Indiana. Its 33,000 students are enrolled in 64 schools, from elementary to high schools. In addition to student computer labs, the IPS data center supports more than 2400 teachers and 4000 staff members.

The principal goal of the IT staff at IPS is to provide students and staff with access to the computing resources and applications that they need to achieve educational objectives. Yet with 300 physical servers supporting up to 35,000 active users on any given day, and with state budgets getting tighter and tighter, IPS was running low on the resources and space required to accommodate its rapidly evolving needs. Vital departments such as school police were using outdated equipment. And with many of the district's servers underutilized, IPS was unable to harness the full potential of its own computing power, and faced the need to improve the ratio of student/computer accessibility.

Another challenge was the ongoing application needs required to support district curriculum or specific class requirements. Traditionally, introducing a new educational application for students forced IT staff to visit each school and install the necessary software on each computer. This requirement severely restricted IPS's ability to respond to and deliver a dynamic learning environment for students and educators.

Furthermore, IPS needed to prepare for a statewide paperless initiative that required all students to take state tests online by 2014. "Not all of our elementary schools had the technology capabilities necessary to support online testing," says Wayne Hawkins, technology systems officer at IPS. "The statewide initiative obviously required a more robust infrastructure across the entire district."

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- Wayne Hawkins
Technology Systems Officer
IPS

IPS recognized that, to meet these challenges, the district would need to implement desktop virtualization, consolidate its data center infrastructure, improve server utilization, and extend technology access to more classrooms. “We had to come up with a better solution for serving the students,” says Dr. Dexter Suggs, chief information officer of IPS. “At the same time, we wanted to integrate technology so that it’s more than just another tool used for administration or support. We wanted technology to play a key role in the learning process.”

Solution

After testing a number of competitive solutions, IPS decided to implement Cisco® Desktop Virtualization Solutions. Built on the Cisco Unified Computing System™ (UCS™), the Cisco Desktop Virtualization Solution can be used for delivering virtualized workspaces in education. “We selected UCS for two reasons,” says systems and operations manager Luther BOWENS. “Cost was a major consideration, of course, but we were also looking for a solution that could deliver in terms of breadth and scale. Specifically, we needed to achieve optimal throughput in a more consolidated area, and we needed to support a broad range of devices and user requirements.”

As part of the UCS deployment, IPS deployed Cisco UCS B230 and B250 Blade Servers, which support the district’s administrative and educational applications, such as Microsoft SQL Server and an enterprise resource planning (ERP) solution from Tyler Technologies. Using this infrastructure, the district deployed over 5300 virtual desktops across many different form factors, including desktop hardware, thin clients, tablets, and smartphones.



Virtual desktops present unique demands not typically seen with other server workloads running in the data center, and as such, require a data center infrastructure optimized for desktop virtualization. IPS’s data center already included many Cisco components, which made for a straightforward UCS implementation. For its access layer, the district utilized Cisco Nexus® 5000 Series Switches, which supports Fibre Channel over Ethernet (FCoE) transport between its UCS systems and storage arrays. It also implemented Cisco Nexus 2000 Series Fabric Extenders to create a top-of-rack solution that sidestepped the usual two-switch-per-rack configuration. IPS’s three Cisco Catalyst® 6500 Series Chassis were also reconfigured to serve as an external distribution layer.



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Results

IPS has achieved major efficiencies across its IT infrastructure, saving the district an estimated \$1.1 million in hardware costs and services. “With virtualization, we reduced our physical servers from 300 to 17,” says Hawkins. “Considering our budgetary restraints, that’s a major victory. We also cut our cabling costs by up to 90 percent compared to other blade solutions by using UCS fabric extenders. And, of course, we now have lower energy bills due to reductions in hardware.”

With desktop virtualization deployed on Cisco UCS, IPS has achieved even more dramatic ROI (return on investment) due to its simplified desktop IT management, and reductions in licensing fees. “With the data center licensing for Windows, we can upgrade Windows machines to Windows 7 and even Windows 8, while saving as much as \$2 million,” says Bowens. IPS sees additional cost savings by adopting a Unified Fabric approach with FCoE. “With the Cisco Nexus 5000 switches, we don’t have to purchase separate fibre channel switches, which helps us save money on infrastructure costs as well,” says Hawkins.

Significant savings also stem from reduced support and maintenance requirements. “I’m using fewer contractors on some of my server environments, so I’m probably saving \$50,000 a year on that alone,” says Bowens. “In addition, we’re seeing tremendous time savings for our full-time staff. Before, if we wanted to roll out an application, it would take hours. Now we can do it in minutes.”

Desktop virtualization delivered on Cisco UCS also enables IPS to make the most of legacy hardware and software. “Our facility employees can keep using some of their legacy applications without being forced to upgrade,” says Sean Waddell, assistant administrator for IPS. “We can even use virtual desktops to revitalize some of our older hardware in order to extend the useful life of the equipment.”

Not only is the district’s new infrastructure more cost-effective, it is also considerably more scalable. For example, Cisco UCS Manager makes it possible for IPS to recover quickly in the event of a server outage. “There’s a great deal of redundancy inherent in the system,” says Hawkins. “If we lose a server, all we have to do is move a service profile to another server, and we’re covered almost instantly.”

Desktop virtualization is proving especially useful for online state testing. “During the testing window, we can deliver a desktop for testing to our existing computers,” says Waddell. “Then, when the testing window is closed, we can roll those devices back to a more traditional computer lab setup. That level of flexibility will make it a lot easier for us to meet similar state requirements in the future.”

For staff and students, the biggest new benefit of desktop virtualization is secure mobile access, especially amidst the need to support a “Bring Your Own Device” (BYOD) approach for students who prefer to access educational workspaces on the devices they prefer. “Any IT administrator in an educational environment knows that one of the biggest challenges is accommodating a huge range of devices on one network,” says Dr. Suggs. “Virtualization gives every user the ability to have remote access, and it enables us to offer a truly connected educational experience.”

Product List

Data Center Solutions

- Cisco Unified Computing System (UCS)
 - Cisco UCS B230 Blade Servers
 - Cisco UCS B250 Blade Servers
- VMware View
- VMware ThinApp

Routing and Switching

- Cisco Nexus 2000 Series Fabric Extenders
- Cisco Nexus 5000 Series Switches
- Cisco Catalyst 6500 Series Chassis
- Cisco Content Switching Module

Applications

- Tyler Technologies – Munis (ERP)
- Microsoft SQL Server
- MySQL

Next Steps

Cisco Desktop Virtualization Solutions build upon traditional desktop virtualization, by delivering unified workspaces for students and educators, integrating virtual desktops, voice and video, with an uncompromised user experience. IPS plans to add video and voice capabilities to its virtual desktops, which would position the district even more firmly as an innovator and leader. “In addition to other school districts, we have a number of noneducational organizations asking us for advice,” says Hawkins. “We pride ourselves on being on the cutting edge. But we wouldn’t be there without Cisco.”

For More Information

- To find out more about the Cisco Desktop Virtualization Solution, visit: www.cisco.com/go/vdi.
- To find out more about Cisco Unified Computing, visit: www.cisco.com/go/ucs.
- To find out more about Cisco Nexus Switches, visit: www.cisco.com/go/nexus.

This customer story is based on information provided by Indianapolis Public Schools and describes how that particular organization benefits from the deployment of Cisco products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

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